

## C L A I M S

1. Device for regulated heating of media in a dental handpiece (1) having
  - 5 a) at least one media line (10) which can be opened via a switch (32),
  - b) a heating element (12, 31) associated with the media line (10),
  - 10 c) a temperature sensor (13, 34) detecting the temperature of the medium and
  - d) a regulation circuit (33) which is connected with the temperature sensor (13, 34) and controls the heating element (12, 31) in dependence upon the sensor signals,
  - 15 characterized in that,  
the heating element (12, 31) is, after an actuation of the switch (32), operated for a short period of time at a predetermined heating power independent of the output signal of the regulation circuit (33).
  - 20
2. Device according to claim 1,  
characterized in that,  
the suppression time of the regulation is dependent upon the switch-on interval of the switch (32).  
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3. Device according to claim 1,  
characterized in that,  
the device has a further media line (11) which can be opened by second switch (42), with which further  
30 media line there are associated a second heating element (41), a second temperature sensor (44) and a second regulation circuit (43), the second regulation circuit (43) controlling the second heating element (41) in principle in dependence upon the sensor  
35 signals of the second temperature sensor.
4. Device according to claim 3,

characterized in that,

the first media line (10) is provided for the delivery of air and the second media line (11) for the delivery of water, wherein upon a simultaneous actuation of the two switches (32, 42) the heating element (31) for the air media line (10) is switched off.

5. Device for regulated heating of media in a dental handpiece (1) having a media line (10) for air which can be opened via a switch (32) and a media line (11) for water which can be opened via a further switch (42), there being associated with each media line (10, 11) in each case a heating element (12, 31; 41), a temperature sensor (13, 34; 44) detecting the temperature of the medium and a regulation circuit (33; 34) connected with the corresponding temperature sensor (13, 34), and the regulation circuits (33; 43) controlling the respective heating elements (12, 31) in dependence upon the sensor signals, characterized in that, upon a simultaneous actuation of the two switches (32, 42) the heating element (31) for the air media line (10) is switched off.

6. Device according to claim 5, characterized in that, after an actuation of the first switch (32) the associated heating element (12, 31) for the air media line (10) is operated for a short period of time at a predetermined heating power independent of the output signal of the associated regulation circuit (33).

7. Device according to claim 6, characterized in that,

the suppression time of the regulation for the heating element (12, 31) for the air media line (10) is dependent upon the switch-on interval of the switch (32).

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8. Device according to claim 1 or 5, characterized in that, the regulation circuit (33) or regulation circuits (33, 43) controls via a transistor (37, 47) an optotriac (35, 45) switching at zero crossing, which  
10 optotriac switches a power triac (36, 46) for the heating current of the heating element (12, 31, 41) concerned.

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9. Device according to claim 8, characterized in that, there is connected to the base terminal of the transistor (37) for the air heating an RC member (38) which after an actuation of the first switch (32) for  
20 the air media heating suppresses the output signal of the regulation circuit (33) for a short period of time.

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10. Device according to claim 1 or 5, characterized in that, the temperature sensor or sensors (34, 44) are arranged directly in the associated media line (10, 11).

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11. Device according to claim 8, characterized in that, there is provided in the media line (11) for water an heat exchanger element (23) which for returning the loss heat arising at the power triac (23a, 46) for  
35 the water heating is thermally coupled therewith.

12. Device according to claim 11,

characterized in that,  
the power triac (22a, 46) for the water heating and  
the heat exchanger element (23) are arranged on a  
common circuit board (14) and connected with one  
5 another via a metallized layer.

13. Device according to claim 11,  
characterized in that,  
the power triac (22a, 46) for the water heating and  
10 the heat exchanger element (23) are arranged on a  
common cooling body (25).

14. Device according to claim 11,  
characterized in that,  
15 the heat exchanger element (23) forms a bearing  
surface for the power triac (22a, 46) for the water  
heating.

15. Device according to claim 11,  
20 characterized in that,  
in the region of the bearing surfaces for the power  
triac (22a, 46) for the water heating and for the  
heat exchanger element (23) there is additionally  
applied a heat conductive paste.

25 16. Device for the regulated heating of media in a dental  
handpiece (1) having  
a) at least one media line (10) which can be opened  
via a switch (32),  
30 b) a heating element (12, 31) associated with the  
media line (10),  
c) a temperature sensor (13, 34) detecting the  
temperature of the medium and  
d) a regulation circuit (33) which is connected  
35 with the temperature sensor (13, 34) and  
controls the heating element (12, 31) in  
dependence upon the sensor signals,

characterized by  
a heat exchanger element (23) provided in the media  
line (11) which for the return of the loss heat  
arising at the electronic components (22a, 46) of the  
5 regulation circuit (33) is thermally coupled  
therewith.

17. Dental spray handpiece for the delivery of air and/or  
water,  
10 characterized by  
a heating device for regulated heating of the media  
in accordance with any of claims 1 to 16.

18. Dental spray handpiece according to claim 17,  
15 characterized in that,  
the temperature sensor or sensors and the further  
electronic components of the heating device are  
arranged completely within the handpiece.